

Merry Christmas!

Thank you for your kind comments on my first issue of Event Horizon last month. Our club enjoys a wealth of talent and it is my great pleasure to showcase the words, photos and knowledge of those people. Be sure to thank them for their contributions to our newsletter.

This month we are fortunate to have another how-to article. This time

from Ed Smith. Steve Germann continues his series, Dwarf Planet of the Month. Jackie Fulton reports on a local, annual astronomy event. John Gauvreau continues to inspire us with his The Sky This Month. I have news of a tele-

scope that has been donated to the club. Jim Wamsley gives us a personal wrap-up of IYA2009 and last, but definitely not least, Alexandra lightens our mood with a seasonal Cartoon Corner.

Our observing director, John Gauvreau, and I have been brainstorming on how to improve the monthly star charts offered in EH. I think you'll agree that John has found an outstanding version and we hope to continue with these throughout the upcoming year.

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### From the Chair by Steve Germann

November's Telescope Clinic was a fine evening. We had many members and interested families come by for a look at the scopes, and to ask questions about calibration and purchasing decisions. Our expert members were able to recalibrate a few scopes, balance them and make them work.

It's best to give people advice before they see the department-store advertising. As usual, many people were impressed with the level of generosity, and professionalism among the HAA members in attendance,

and rightly so.

One highlight was the absolutely dreadful mirror that had been donated to the club, covered with cobwebs, dead bugs, and leaves, which Ann perked up. She was as surprised as we were when the images of the moon through it looked remarkably good. It just goes to show you... a mirror that looks like garbage is a long way from garbage. That said, there's a plan to perk it up even more, and turn it into a loaner scope. Ann will have plenty to say about that.

My theme for 2010 is 'The members'. Your council is planning an excellent series of special events to appeal to young and old alike, and I am delighted.

We will be distributing the 2010 RASC handbooks at this meeting and the next. If you have your name on my list, find me for your copy.

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### From the Chair (continued)

The first meeting in 2010 will be on January 8th, 7:30 PM at the Spectator Auditorium. This meeting will be special. It's a chance for our members to bring some of their astro-gadgets to the meeting, and talk about them. There will be three parts to the meeting.

We will start with a couple of short talks by our members about new gadgets they have bought or built. Don't worry, it's not you. The members of note have already stepped forward. Please feel free to come to the meeting without fear of being expected to address the crowd about your treasure. That's where the intermission fits in; there will be a chance to circulate and visit other members. We can see what others got (or bought for themselves) for Christmas. It may turn out you received something you are planning to return, and here's just the right time and place to find out what to exchange it for.

After the intermission, John will do the Sky this Month, and will have enough time to fit in some extras.

Following the meeting we will retire to a local Bistro for further conversation, and if it's clear, more than a few minutes looking at the winter constellations from the amply lit environs of the Hamilton Spectator Building.

On the 26th of February, there will be a visit to the McCallion Planetarium, for HAA members and friends, organized by your Councilor at Large, Andrew Bruce. There will be two shows, one early, one later.

Your advance payment of \$5 will get you a ticket for admission to one of the shows, conducted by grad students from McMaster. Bring your money to the January meeting for best results; a few tickets may remain by the February meeting date. Only 35 people per show, so act soon.

I hope to see you all there. It's your year.

### Editor's Comments (continued)

Let us know what you think. We'd love to hear from you.

This month's masthead photo is by one of our best astrophotographers, Bob Christmas. Bob took this photo of the Perseus Double Cluster from the pristine, dark skies of Spectacle Lake. To appreciate fully Bob's photo and the rest of EH, you need to view it on our website. I hope to explore using the resources of the web in upcoming issues of EH. The print format just can't do justice to the EH and only the web allows us to offer you hyperlinks and videos.

Before you settle down for that long winter's nap or after feasting on roast beast, consider writing an article or an equipment review for next month's issue. Send me your photos. (A wintry scene for the masthead would be especially appreciated! Hint, hint.) In the meantime, best wishes to you all for a happy, safe Christmas and many, many clear nights in 2010!

Ann Tekatch Editor@amateurastronomy.org

# 2010 HAA Calendars Still Available



HAA 2010 Calendars are now available for ordering by email or at HAA General meetings. Price will be \$20.00 each. These make a great Christmas gift and are perfect for the home or office. Deliveries will begin at the General meeting on November 13, 2009. The calendar has been improved for 2010 with a lot more celestial events and historical anniversaries. And of course, there are many amazing photos taken by your fellow club members.

To order your copies or for more information, please send an email to Don Pullen, treasurer@amateurastronomy.org.

# Dec 2009 Treasurer's Report by Don Pullen

#### (Unaudited)

\$ 3652.01
\$ 1675.21
\$ 1345.00
\$ 3321.80

Notes:

1. Major revenue sources included: Memberships (\$450), Calendar Sales (\$840), 50/50 (\$55)

2. Major expenses included: Liability Insurance (\$702.00), Calendar Printing (\$973.21)

# Cartoon Corner by Alexandra Tekatch



"EQ Platform...What is it?...How does it work?...Gee That's Cool ...Apparently the EQ stands for Equatorial - as in German Equatorial, well sort of. Apparently it allows a Dob (Dobsonian Mount) to track Lunar and Celestial objects keeping them in the FOV. (Field of View)"

As a novice astronomer and a relatively new member of HAA all these questions came to mind when I first laid eyes on that shiny aluminium gadget Steve Germann had his GWS (Great White Scope) mounted on. I wondered and asked myself if I could duplicate this for my BWS (Big White Scope). "Yup I'm sure I can." So, the search began.

After many many months I finally stumbled upon a website belonging to a chap in Holland who, as it turned out, was quite an innovator. See..

http://members.ziggo.nl/jhm.vanga stel/Astronomy/Poncet/e\_index.htm

Once I had found this gem, I was away to the races (so to speak). The search for the appropriate material was on. I looked about my shop to see what could be used for the platform and came up with some 3/4 in. fir plywood and another piece of spruce plywood of the same thickness. Now the purists would suggest that I must use marine grade or Scandinavian birch ply (nothing but the best!!) but keep in mind that this was a pilot project and if you put enough paint on it, anything will weather the elements guite well. Besides. I have no intention of sailing it around the world.

Next the search for the appropriate bearings to support the total weight of the top plate along with the Antares 12" Dob (BWS) - approximately 85 lbs. I located some regular ball bearings at the local roller blade /skateboard store and the package of 8 came to about \$16.00. I next went on a hunt for some aluminium for the surfaces that would be in contact with the bearings. This had to provide a hard, smooth surface and protect the plywood from wear.

This proved to be a bit of a challenge since I have been retired for a number of years and most of my old contacts were retired or out of business. Luck was with me again when I stumbled yet again on a source...yes Canadian Tire carries both light gauge sheet and bar stock in aluminium. One 48" length of 1/8 X 3/4 and a piece of sheet of about a square foot and the cost was negligible - 10 dollars or so.

Onward and upward as they say...back to the shop to start the project. Measuring twice and cutting once. The biggest problem was to establish the correct angles required for operation at the local latitude, which in this area is 43-deg N lat. There are in the web article two different sub routines that can be used to calculate the dimensions required to fabricate the mount, to say nothing of the many diagrams that help explain the construction.

As mentioned earlier, I had purchased roller blade bearings to ensure a solid but smooth operation of the mount. This was mainly due to availability and cost. I soon discovered that although all bearings functioned well, the set that support the angled back of the tilted sector (as in latitude) tended to skid against the aluminium plate as the mount traveled through its conical path. While the bearings used against the 1/8 X 3/4 " edge of the segment functioned flawlessly.

I now reconsidered the use of the alternate bearing that is recommended in the construction article...so off to the local supplier for a price on the pancake type Transfer Bearing -OUCH! After a considerable search they found some at 17 bucks a pop (and I needed four of them). So, thanking the chap for his trouble and mumbling something about my next pension cheque, I left.

Back to the WWW to do a little more research. I discovered while they are scarce as hen's teeth in Canada they seem to grow on trees in the States. While prices and delivery costs vary, I was able to find a supplier at... http://www.gilmorekramer.com/mo re\_info/ball\_transfers\_flying\_saucer /ball\_transfers\_flying%20saucer.sht ml

A quick phone call and they were ordered and on their way. It was just what I needed and at a more reasonable price (qty of 4 plus shipping was less than 2 quoted in Canada) Be sure to ask they be shipped USPS rather than Courier. Once the flying saucers (that's really what they were called, honest) arrived, I was back on track. I had to rework the bearing mount structures and once they were installed, the world was as it should be. Smooth as silk.

After checking the travel, which ended up being 17-18 Degrees or 1+ hour's worth of tracking, it was time to decide which method to use to drive the platform. One method is to use a powered wheel against the edge of the metal-faced segment. This arrangement is used on a number of commercially available platforms. The second method (which is what I chose) employs a feed screw and a link from the feed nut to the upper table. This arrangement also uses a stepper motor that is controlled electronically to maintain, in this case, 6 RPM on the 5/16 - 18 UNC threaded rod I used in this project.

I had spent many hours deciding what controller I would use, as there are a couple of different boards suggested in the article. After some discussion with our (HAA) resident genius, Steve Germann, it was decided that he would come up with a more simplistic design that would track in both Sidereal and Lunar

# Building An Equatorial Platform (continued)

Rates. There are also options planned to fast forward to the start position and centre for packing up for travelling. Limit switches have also been included to prevent over-travel.

At the time of this writing, Steve had almost completed his portion of the project and it will be ready for fine tuning shortly. This has been a bit of a challenge, but one I enjoyed. It was like being back in the traces again.



Left: Equatorial platform shown with Antares 12" Dobsonian mount on board.

Note how the author has replaced the stock ground board of his Dob mount by modifying the top platform of the equatorial mount to replace it. The plastic or teflon pads and centre pivot bolt (which would normally be part of the ground board) can be seen in the photo below. This helps to keep the overall height of the telescope's eyepiece at a manageable level. No step-stool is required. Very clever, Ed! - Editor



# Building An Equatorial Platform (continued)



Above: Showing threaded rod and link to upper table.



Left: Closeup of bearings.

Right: Showing bottom side of top platform.



### Astro Out and About by Jackie Fulton

The Mountsberg Conservation Authority (MCA) has a yearly event called "Explore the Night Sky." For the past 15 years astronomers and members of the public alike have gathered at the MCA each Fall. For a small fee a ticket holder recieves dinner, astronomy presentations, observing, lively discussion and tall tales about the history of astronomy around a camp fire. The event goes on rain or shine. This past October 24 was no different.

As guests began to arrive they were welcomed by Terry and the rest of the MCA staff. Dinner was from 6 to 7 pm, comprised of a hearty chili, a cauldren of soup, grilled cheese buns, tossed salad, and homemade sundies for dessert. Beverages were juice, coffee and tea.

After dinner the first presenter was Phil Mozel from the Ontario Science Centre. Through his slide presentation, Phil updated everyone on the astronomy news of the day. He focused on the meteor find in Grimsby, and the LCROSS mission by NASA. Young and old were fascinated by the meteor sample provided , by its weight, its smell, and testing its magnitizm. Throughout his presentation Phil fielded the questions of the curious, combining his experience with his infectous sense of humor.

Following Phil Mozel was our own John Gauvreau. IYA festivities at the MCA would not be complete without the appearance John G as Galileo. John G delighted the audience with his informative and interactive role play describing 400 years of astronomy.

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### Astro Out and About (continued)

Unfortunately the Clear Sky gods did not rule in favor that night, making observing impossible. Undaunted, Terry and the MCA staff guided everyone outdoors to a blazing campfire. Once there, huddled together in the fire light, Phil Mozel told of the legends and folklore of the night sky.

It was quite late before the evening drew to a close, with sighs of disappointment as the audience was reluctant to leave. A tribrute to the ongoing success of this event.

Starting next September be sure to look for "Explore the Night Sky" at Mounstberg and find a place for it on your list of astro things to do. Be sure to contact the MCA for reservations to avoid disappointment. It is a truly enjoyable night of family fun, and is well worth the drive.

## Dwarf Planet of the Month: Ceres by Steve Germann



Ceres is the only Dwarf Planet to be visible with the unaided eye, from a particularly dark place, although it's right on the edge of visibility, and you would need to know where to look.

I have seen Ceres a few times, when it was pointed out by our Observing Director that it was at opposition and particularly visible. In that case I used a telescope; it's not dark enough around here to hunt Ceres without equipment. It can reach magnitude +6.7 which is still very dim, if viewed from earth at opposition near its Perihelion. The next time it will be that bright will be in about 3 years on December 20, 2012. Sounds like a good reason to visit the Outback of Australia and get some warmer climate

Ceres was named after the Roman

goddess of plants, by Giuseppe Piazzi, who found it by accident while looking for the star 'Mayer' 87'. Measured on successive nights for several weeks, it then became too close to the sun to follow. Therefore, finding it would require some fancy math. In the process of computing the orbit, Karl Friedrich Gauss had to develop some formulae, which are still used to solve for the orbit of a celestial object, given 3 accurate sightings from Earth. The data specify an 8th de-

## Dwarf Planet of the Month (continued)

gree equation, and various approximation methods had to be invented by Gauss and used to solve for the roots of the equation, one of which is the orbit desired, 1 is the earth's orbit, and 6 others are spurious and have to be eliminated by common sense. That's quite a drama, mathematically speaking. Gauss' computations were good, and the planet was spotted near his predicted position a few months after it was possible to observe it again.

Named 1 Ceres by the dwarf planet namers, it's the first qualified object discovered in the solar system. (There are a few unqualified planets too, but they won't be mentioned). Its diameter was first under- (in 1801) then over- (in 1811) estimated. We now have measured its diameter to be about 890 km. Its orbit is inclined 10.6 degrees to the ecliptic. Its ascending node is at longitude 80.39 degrees. That puts it somewhere in Cancer. When Ceres is in Cancer it's closest to the ecliptic, and heading north.

Ceres is a very interesting planet. It has a lot of water on board. Perhaps as much water as on Earth. It's considered to have a rocky core, but not necessarily one that was ever molten. It has 32% of the mass in the observed Asteroid belt. That's pretty hefty. All told, its mass is about 9.4x10 to the 20th kg. There's 100 million tons of Ceres for each person on Earth, if we should ever divvy it up. Enough raw material to make quite a nice spaceship. But for now let's admire it as a qualified planet.

Ceres has a surface which is covered with clay and other debris, similar to what you see on a snowbank in the spring. A lot of water has sublimated from its surface and has allowed a lot of dust to be left behind, and to naturally settle on the top layer. Once there's a coating of dust, inner water sublimates much more slowly; Ceres still has a lot of its water. It might even have a subsurface ocean, similar to Europa.



There's a mission to Ceres... The Dawn mission will go into orbit around Ceres in 2015 and map most of its surface from 3 altitudes. Mooted then reconsidered than cancelled then reinstated, the Dawn mission has had its ups and downs. Its most recent up was its launch, on September 27, 2007. It will spiral lazily until it reaches its goal, in a heliocentric orbit, and catch up on Vesta in 2011 and Ceres in 2015. The Dawn mission is interesting because it needs to use an lon engine to get sufficient thrust to get there. Its engine is relatively gentle as engines go, making 0.1

Newton of force, but able to run flat-out for years if needed. The engine and propellent cause a 10 km per second change in orbital speed over the course of the mission, which is a record for net speed change caused by engine thrust, for a mission after its initial launch. Dawn is scheduled to remain in Orbit around Ceres after the mission ends. Let's hope the craft lasts

## Dwarf Planet of the Month (continued)

long enough to get a good time series for the planet, and to make some serendipitous discoveries too.

Here's a plot of the orbit of Dawn, on its way to view planets created at the Dawn of the solar system and not much altered by geological processes. <a href="http://tinyurl.com/haa-dawn">http://tinyurl.com/haa-dawn</a>, an up to the minute report on the location of the ship is at <a href="http://tinyurl.com/haa-where-dawn">http://tinyurl.com/haa-dawn</a>, an up to the minute report on the location of the ship is at <a href="http://tinyurl.com/haa-where-dawn">http://tinyurl.com/haa-dawn</a>, an up to the minute report on the location of the ship is at <a href="http://tinyurl.com/haa-where-dawn">http://tinyurl.com/haa-where-dawn</a>, an up a really cool photo of the ship being readied for launch, at <a href="http://tinyurl.com/haa-dawn-wow">http://tinyurl.com/haa-where-dawn</a>, and a really cool photo of the ship being readied for launch, at <a href="http://tinyurl.com/haa-dawn-wow">http://tinyurl.com/haa-where-dawn</a>, and a really cool photo of the ship being readied for launch, at <a href="http://tinyurl.com/haa-dawn-wow">http://tinyurl.com/haa-where-dawn</a>.

Notice a common thread? These qualified planets are getting a lot of attention from scientists. We can pay them some too. Watch for your chance to spot Ceres at its next opposition, in June 2010. In 2012 Ceres will be the brightest it will get in decades. We missed its closest approach, last February, and it will take 4164 more years to come closer than that.

In 2081, the Earth will transit the Sun as viewed from Ceres. That will be an interesting sight. (Road trip, anyone? - ed.)

Ceres even has a fan club. Here's an excellent site from New Zealand for finding and knowing details about Ceres. <a href="http://tinyurl.com/haa-ceres">http://tinyurl.com/haa-ceres</a>

### The Maps This Month, December 2009 by John Gauvreau

#### Stars and their Magnitudes

Starting this month the *Event Horizon* is bringing you something different in the way of **star charts**. Rather than the repetitive and sometimes hard to read all-sky-maps of the past, you will have the chance to put together a collection of charts that, when completed, will form a fine mag 7 star atlas. Each chart is large enough to show several constellations, and there will be a total of 20 charts by the time you're done. Use your printer at home to print them right from this issue of the *Event Horizon* on the HAA website. While assembling the atlas over the months, each chart can be used during the season it is provided for you. Let's look at the first charts now!

Star charts have some things in common with traditional maps and some things are different. At first glance the differences will be obvious, and you may think that a chart like this is confusing and unmanageable. Dark solid lines, light solid lines, dotted lines, ovals and circles and dots (some dots have lines through them!) and a variety of letters in languages that you may not speak! You may be up for a challenge, but the truth is that it's really not that hard to understand (just to give you a head start, dotted circles are star clusters and ovals are galaxies, but we'll go into that more in the future).

Of course the most obvious place to start is with the **stars** (after all, it is a *star* chart!). The dots representing the stars come in different sizes, and the size represents the brightness of the star. Bigger dots are brighter stars and small dots are faint stars, but I bet you already figured that out. Look down at the bottom right corner of the chart. See that it says "Magnitude 0.0 1.0 2.0" and so on, each number with an appropriate sized dot above it. Those numbers are

## The Maps This Month, December 2009 (continued)

the star's **magnitude**, which, in this context, means brightness. One thing you may notice right away is that bright stars (big dots!) have low numbers and fainter stars have big numbers. This strange reversal of numbers actually goes all the way back to the ancient Greek astronomer Hipparchus.

**Hipparchus** assembled comprehensive star charts and catalogues, in which he estimated the brightness of stars. He put the 20 brightest stars in the first group, which he referred to as 'stars of the first magnitude', then the next group was of second magnitude and so on until he put the faintest stars we can see in the sixth group, the stars of the sixth magnitude. Today we know that although his estimates were excellent, we can more accurately give the brightness of a star by expanding his scale in both directions. Thus, the brightest stars in the sky are brighter than first magnitude. How do you pick a brighter number than one? Zero of course! So the chart starts at magnitude 0 (Jupiter can be mag -2, and Venus can be -4) and it goes up to mag 7, which is slightly fainter than most people can see with just their eye (remember, Hipparchus stopped at 6). With binoculars or telescopes you can see much fainter stars, reaching magnitudes like 10 or 15. It's a strange system, but it's a system that has worked for over 2,100 years, so we'll stick with it.

Have a look at chart number 1. On the left is the **Big Dipper** and you can see that most of the main stars that make up the Dipper are magnitude 2 stars. So is Polaris, the North Star, right in the center of the map. So, if you know what the Big Dipper looks like in the sky, you know what a second magnitude star looks like. Congratulations! The rest are either brighter or dimmer than the Dipper and you can judge for yourself when you are outside. Try finding a star in the sky that looks about the same brightness as the stars in the Dipper and then check the star charts to see if you're right. Try this with other star of other brightnesses until you are familiar with the full range of the magnitude scale. Estimating star magnitudes is a very useful skill when observing variable stars or double stars. You can also judge how clear the air is and how much light pollution you have by estimating the magnitude of the faintest star you can see each night. Some nights are definitely better than others and soon you will be an excellent judge of your observing conditions.

In the little exercise that we just completed we used the stars in the Big Dipper. I bet you had no trouble spotting the Big Dipper on the chart since the stars that make up the Dipper are clearly connected by dark, bold lines. All the key patterns in the **constellations** are shown this way and you can also see The Little Dipper (Ursa Minor), Cassiopeia, Draco and Cepheus marked on the map #1. There are a lot more constellations and plenty more to learn about them, and we'll talk about that next time. In the mean time, now that you know how to read a star's brightness and the map's magnitude scale, we hope you enjoy your new star charts, and enjoy the time you spend outside with them.





## The Sky This Month December, 2009 by John Gauvreau

December brings us the longest nights of the year, centered around the **winter solstice**, which falls on Monday December 21st. By now the constellations that we associate with winter are up high enough to observe in the evening sky, and we are enjoying our first good views of Orion and company. See how it lies on it's back as it rises around 7pm in the evening, stands tall in the south at midnight, and falls face forward into the western horizon in the morning before sunrise. Of course, that is actually you tipping from side to side as the Earth rotates you around each day. How would it look different if you were standing on the equator, or the north pole? Enjoy these long nights in which you can observe before dinner and take in such a wide range of the sky in a single night.

Of particular note this month is the **Geminid Meteor Shower**. Peaking on the night of December 13th and the morning of the 14th, this is one of the best meteor showers of the year. Consistent from year to year, and with a broad peak, you can keep an eye out for Geminids for days earlier and later than the peak. Geminids are medium brightness and medium speed, but sometimes you can see colours, so keep an eye out for that. This year there is only a very small crescent moon in the morning sky, so it will be perfect conditions for meteor watching. Bundle up warm and bring plenty of coffee or cocoa!

For a few days centered around December 20th, Jupiter and Neptune will appear in the same telescopic field of view. By using low power, you can see these two planets only 1/2 degree apart! What a wonderful way to find Neptune, if you haven't before, and what a great opportunity to compare the views of two planets at the same time. See what a difference it makes when one planet is 6 times farther away than the other. Both planets are low in the west as soon as it gets dark, and this is really the last month for us to get a good view of either of them before they slip into the west horizon. Of historical note, in these days marking the 400th anniversary of Galileo's first telescopic observations, is that he too observed Jupiter and Neptune in the same field of view back in 1612 and 1613. Unfortunately his optics weren't as good as ours and he didn't realize that he was seeing a new planet. Why not make this observation yourself, and appreciate it for him? Mercury is an evening star this month, and at its most distant from the Sun around the 18th of December. Challenging to observe because it always remains so close to the Sun, it can still show good telescopic views, with phases like Venus. You have to catch it in the west before it is fully dark, so find an unobstructed horizon and good luck! Another planet to watch for this month is **Mars**. Rising around 9pm, it is high enough to It's 12 arcminute disc may seem small compared to Jupiter, but it still observe by midnight. shows fine surface detail through a telescope, and shines brightly at magnitude -0.6 for unaided observers. Next month Mars is at it's best and we'll talk more about it then.

The moon reaches **first quarter** on December 24th. Christmas Eve may find you with other obligations, but if anyone receives a gift of new astro-toys, there is a target waiting for you to look at. The first quarter offers an abundance of detail and is the favourite phase of many observers. As I head off to work in the morning I have been observing the **last quarter** moon, still visible in the blue daylight sky. Have a look yourself for this bright, white moon in west, or if you miss this opportunity (which is now, as you receive your *Event Horizon*), try again a week into the new year.

This month brings us **two full moons**. Because the moons cycles through its phases in only 29 1/2 days, and most months have more days than that, it is possible to have a full moon in the

### The Sky This Month December, 2009 (continued)

early days of the month and fit a second one in before the month's end. This occurs approximately every 2 years and 8 or 9 months. We had a lovely full moon on December 2nd and now it is time for another. December 31st, the last day of the year, brings us the 13th full moon of 2009 and the 2nd of the month. What a lovely way it would be to note the final day of the year by watching the full moon rise in the final hours of 2009.

Last year I spent December 31st at a party of sorts, but not the kind usually associated with New Year's Eve. Along with a couple of others, I enjoyed a mini star party out under the clear winter skies. That night there was a lovely conjunction of planets in the western sky, with a pairing of the Moon and Venus and another pairing of Jupiter and Mercury (see the January image in the HAA 2010 calendar). There was a very cold wind, and I truly doubted the wisdom of trying to observe on such a cold night. As the night wore on, though, the wind died down and by midnight the air was cold but calm. The new year came in without a planet left in the sky (all had set by then), but Orion was high in the south, looking over a snowy landscape, and the coyotes helped mark the occasion with a round of howls right at midnight. It was one of those perfect moments that we sometimes find out under the sky, and a quiet but lovely way to bring in the new year. I hope that you have a wonderful holiday season, and that it is the start of a good new year ahead, in which you too may find a memorable moment or two out under a perfect sky.

### Super Space Conqueror Invades Hamilton by Ann Tekatch

The week after Thanksgiving, we received the following email through the club's website

"Hi: I have obtained your address thru the library and write to you regarding a 6 inch Newtonian Reflector Telescope on an equatorial mount which I have and would like to donate to such an organization as yours. This telescope is about 30 years old and belongs to my son who lives in the Yukon - he has never been able to transport it there, and it would be great if it were being used by someone. The base is a bit rusty. There are extra eye pieces. If your organization has interest in the telescope I'd like to hear from you."

I volunteered to contact this lady and determine whether the telescope was salvageable. Bill, Alex and I picked up the telescope from its home in Burlington a few days later. As promised, the mount was very rusty and even heavier than I'd imagined. The telescope was uncovered and appeared to have been that way for the better part of its 30 years. The mirror was a fright and we quietly feared that it was a write-off. However, the donor had gone to quite a bit of trouble to find a use for this once treasured telescope, so the least we could do was clean it up and salvage whatever parts we could. Bill and I removed the 48" long, aluminum optical tube from the mount and packed them both into our minivan. I promised the donor that we would let her and her son, Raffles, know when a new home was found for the telescope.

On the way home, Alex made the acquaintance of several former inhabitants of the optical tube. (Note to self - in the future, check for spiders before loading optical tubes into the family vehicle!) Alex was not amused.

Once we were home, I removed the focuser, finderscope, primary and secondary mirrors. Surprisingly, the secondary mirror was almost pristine. The primary mirror was a horror, though. It was covered in dust and bug tar. Bill carefully cleaned it off while I wiped out the inside of the optical tube with bunched-up newspapers. After countless rinsings under fresh and distilled water, Bill set the mirror down so we could examine its surface. The aluminum coating was missing from a good 50% of the mirror's surface, but the glass underneath appeared smooth and unaffected. It could, conceivably, be recoated. Assuming of course that the mirror figure was good enough to warrant the cost.

## Super Space Conqueror Invades Hamilton (continued)

Reading through the literature that came with the telescope, we discovered that it is a Super Space Conqueror 6" Reflector manufactured by Edmund Scientific Co. The mount is actually stamped "Barrington, New Jersey" - the home of Edmund Scientific.

I reported my findings to members of the HAA council and promised to bring the telescope to our clinic at the Spectator Building on Nov. 27. At the clinic, the telescope attracted many HAA-ers who recognized the style from their early days in astronomy. It also sparked a lot of interest in members of the public who were curious about it because it was obviously not a contemporary of the other, computerized, shiny telescopes on display at the clinic. They were just as aghast at the state of the primary mirror as we were.

As the evening drew to a close, I wasn't looking forward to carting the heavy scope back to my van, so I loaded everything else first. While I was doing that, I was surprised to discover that the skies were clear and the moon was



high. Instead of loading the old equatorial mount into the van, I stood it on the ground in the parking lot and headed back into the building to fetch the optical tube. My curiosity was piqued. Just what kind of an image would a 6" mirror provide with only half of its aluminum coating left? I soon had my answer - a brilliant one! I was stunned. The image was unbelievable. I shared the view with others who were just as surprised as I was and there was a unanimous agreement that the mirror deserved to be recoated. It seemed unfair to abandon a mirror that could still deliver satisfying views! I think a number of us bonded with the telescope that evening. Personally, I've started calling it "Raffles" after its previous owner. (I may need an intervention....LOL.)

The cost to recoat the mirror is about \$130 including shipping. Among us ATMers in the club, we can probably scrounge enough wood and fittings to make a Dobsonian mount for the optical tube and voila! A club "loaner scope" will be born! The costs to refurbish the scope and get it operational will need to come from donations, though, because our budget is already set for the upcoming year. We're looking for help from the membership. If you can spare a few dollars or an old eyepiece, please pass it along. We'd also like to hear from anyone who would be interested in borrowing the scope once it is complete.

Now that the mirror has impressed me, I'm having second thoughts about dismissing the old equatorial mount. Stay tuned...

"Raffles" conquering space once more from the parking lot of the Hamilton Spectator building. Photo by Steve Germann.

## Goodbye I.Y.A. by Jim Wamsley

On November 30, 1609, Galileo turned his newly acquired spy glass to the sky, and his first observation was of the moon. What he saw changed him and the whole world. To celebrate this seemingly simple, but earth shaking event 400 years ago, UNESCO declared 2009 the International Year of Astronomy.

Now, in the closing month of I.Y.A., I look back at the past year, richer for the experience.

Starting at the press kick-off at the Ontario Science Centre I attended, with Jackie Fulton and John Gauvreau. Then at the O.S.C., the H.A.A. participated in the Toronto Astronomy Festival. Several H.A.A. members manned our booth in which we had many fun and educational activities, as well as telescopes and other astronomy equipment on display. Fun was not only had by kids using our moon-cratering demonstration, but by the members staffing it. Steve G was covered in flour and cocoa from head to toe. How much fun is that.??!! This was the first of many of the great events in I.Y.A that the H.A.A was involved with.

Although not an I.Y.A. event, another highlight this year for me, was the re-opening of the McCallion Planetarium. The H.A.A. was well represented at the official opening and also the club was treated to a sneak preview of the new venue prior to the re-opening.

In late January we were treated to our first Sky This Month live. Even though we had to dig out the snow drifts to get to the observing site, and in spite of the cold temps, the turnout was great.

Our trip to York University to see their observatory was another bright spot this year. Although the weather was less than stellar, our host Paul Delaney was extraordinary. So much so that the members hardly missed the opportunity to observe through the great scopes.

As is our wont, we had several opportunities to help out area Cub packs. We have a great team to work with the pack leaders and help the cubs get their astronomy badges. If you are looking for a way to expand your astronomy experience, think about getting involved with this group. You may find it very satisfying.

For the 100 hours of astronomy, the club set up scopes in Grimsby, and in spite of the early clouding, over 50 or so people were able to have a Galileo moment. I was not able to make this event, but not to be deterred, as I enjoy sidewalk astronomy, I set up my scope in Dundas two days earlier with Jackie Fulton and had 50 or more people get their first telescopic look at the heavens.

For Astronomy day this year, the weather co-operated with mostly clear skies with a few clouds. We had a large enthusiastic crowd at Bay Front Park. The questions they had kept the 20 or so members present on their toes. The 15 or more scopes we had set up had people lined up at them. All in attendance had a great time.

Our membership made a strong showing at the Binbrook Community Festival in May. We had seven scopes and as many binoculars set up in the park for a very long, but satisfying day.

Early in July we were treated to a guided tour of the night sky by our observing director, John Gauvreau, at the Binbrook Conservation Area for the second Sky This Month live.

Over the course of the summer, I was able to attend several sidewalk astronomy nights at McQueston Park on Hamilton Mountain and in Dundas, close to my home. I was also able to go to star parties in Pennsylvania and Ontario as well as two astronomy camping trips.

In keeping with the weather theme this year it seems, our Night Out With The Stars at Binbrook in September was a very wet one. Despite the rain, we had a great crowd turn out to see the equipment, talk to the members, listen to the speakers, and have fun. Several of the people in attendance for the Binbrook event also showed up for the public night in Burlington the next week, and though it was cloudy, were able to get a look at a few celestial sights.

Just last month, we held our annual telescope clinic at the Hamilton Spectator building. There was an overwhelming response from the membership, with over 20 telescopes of all types set up. We were able to show people entry-level equipment to fit a tight budget, but still give good results. Also more advanced gear was on display for show and tell to whet the appetites of the experienced amateurs in attendance. More importantly, good advice on

# Goodbye I.Y.A. (continued)

what type, or whether to buy a telescope at all, was on offer.

It's not just the special events of the past year that stand out for me. The cast of speakers that presented talks to the H.A.A. this past year has been second to none with a diversity of subjects and level of complexity, from beginner to advanced.

All these things have made this year of celebration very memorable for me. I also look forward to 2010 with anticipation for an even better year and, maybe, a little better weather.

#### Memories of I.Y.A. - photos taken by various members during 2009





### UPCOMING EVENTS

January 8 - 7:30 pm HAA Telescope Clinic at the Hamilton Spectator Building February 12 - 7:30 pm HAA General Meeting at the Hamilton Spectator Building February 26 - HAA trip to McMaster's McCallion Planetarium

### 2009-2010 Council

Chair	Steve Germann
Second Chair	Jackie Fulton
Treasurer	Don Pullen
Membership Director	Jim Wamsley
Observing Director	John Gauvreau
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Heather Neproszel

Come observing with the HAA and see what a great location this is for stargazing, a family day or an outdoor function.

Please consider purchasing a season's pass for \$70 to help support the park.

www.conservationniagara.on.ca/conservation\_areas/binbrook/b inbrook.html

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